

Contextualizing Acculturation: Gender, Family, and Community Reception Influences on Asian Immigrant Mental Health

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Abstract This article investigates differences in the mental health among male and female immigrants from an ecological perspective, testing the influences of both individual acculturation domains and social contexts. Data from the first nationally representative psychiatric survey of immigrant Asians in the US is used ($N = 1,583$). These data demonstrate the importance of understanding acculturation domains (e.g., individual differences in English proficiency, ethnic identity, and time in the US), within the social contexts of family, community, and neighborhood. Results demonstrate that among immigrant Asian women, the association between family conflict and mental health problems is stronger for those with higher ethnic identity; among immigrant Asian men, community reception (e.g., everyday discrimination) was more highly associated with increases in mental health symptoms among those with poor English fluency. Findings suggest that both individual domains of acculturation and social context measures contribute to immigrant mental health, and that it is important to consider these relationships within the context of gender.

Keywords Acculturation · Mental health · Asians · Gender · Discrimination · Ethnic identity

Introduction

How well an immigrant speaks English, the strength of their ethnic identity, and how long they have been in the US, for example, are some of the most commonly used acculturation measures (Zane and Mak 2003). Despite a wealth of research using these variables, much remains to be understood about how they combine with social contexts to influence mental health outcomes; on their own, they do not consistently predict mental health and other health correlates of adjustment. Gender and the contexts of incorporation (i.e., neighborhood and community) and socialization (i.e., family) have all been cited as important domains of the acculturation process (Roosa et al. 2009; Kimbro 2009; Miller et al. 2008; Phinney et al. 2001). This paper incorporates many of these considerations in a study of how acculturation influences depression and anxiety in the first nationally-representative survey of immigrant Asians. We hope to add to the debate about acculturation's role in mental health by demonstrating in what situations it matters, and how we can maintain the relative health of immigrant populations in the US.

Measuring Acculturation

Acculturation can be defined as a psychological process of adjustment when an individual of one culture (i.e., an immigrant) interacts with another culture (Suinn 2010; Berry 2003). Recent evidence suggests that this process may be bi-dimensional and specific to domains (Miller 2010); for example, Asian immigrants can maintain adherence to the culture of origin without losing ties with the host culture, and this may look different within the same individual depending on the specific behavior or value. This theoretical assumption suggests that using domains of change (e.g., English

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proficiency, time in the US, or ethnic identity) as individual measures of acculturation may be a valid way to examine the influence of acculturation on mental health. For example, we can examine whether the depression of an immigrant is associated most with his ethnic identity as Filipino, his English fluency, and/or his age at immigration.

The problem, however, is that the literature shows inconsistent influences of each individual domain of acculturation on mental health. For example, ethnic identity seems to both buffer (among Filipino Americans; Mossakowski 2003) and exacerbate (among Southeast Asian immigrants; Noh et al. 1999) the effects of discrimination on depression. We see the same equivocal patterns for English proficiency and time in the US. English proficiency (Nicassio et al. 1986) and time exposure to the host culture (Leu et al. 2008) are independently associated with risk for depression among Southeast Asian, East Asian, and South Asian immigrants. But in some studies, English proficiency (among Chinese Americans; Takeuchi et al. 1998; among Hmong Americans; Westermeyer et al. 1984), and time in host culture (among Korean American women; Juon et al. 2000), are associated with improved health and well-being.

Instead, the influence of individual domains of acculturation on mental health is likely to depend on gender and social contexts of socialization and of incorporation (Trickett 2009; Portes and Rumbaut 1996; Takeuchi et al. 2007; Bronfenbrenner and Morris 1998). In other words, Asian immigrants living in different social locations in the US may diverge in their mental health as a function of aspects of their local contexts, such as family, neighborhood, and community. Asian immigrants are a very diverse population, and represent a socially-constructed category that includes people from East, South, Southeast, and sometimes even Central Asia. As immigrants, they range from the poorly educated to those with graduate degrees, from countries where English is the official language to those where Asian languages are mostly spoken, from living in ethnic enclaves to living in predominantly White neighborhoods, and from living in the American South versus the West Coast. As such, an ecological perspective on acculturation is consistent with the complex, multi-causal nature of mental health problems (Trickett 2009). A paradigm that includes multiple levels of analysis allows each to contribute to individual well-being through its influence over aspects of both individual and community life.

For example, social contexts may directly increase or diminish the effect of domains of acculturation on health. In one study, English language use was associated with increased risk of lifetime smoking among Asian American and Hispanic adolescents; however, this association became non-significant after access, perceived consequences, friends' smoking, and offers were controlled for (Unger et al. 2000). In a study of Mexican–American

families (Roosa et al. 2009), children in families with few socioeconomic resources and with US-born mothers had more depression than children in other kinds of families. However, this pattern depended on the neighborhood they lived in. Therefore, we test two expectations, which are explained more fully in the following section:

Hypothesis 1 Acculturation will have differing effects on mental health for women compared to men.

Hypothesis 2 Family, neighborhood, and community reception variables will moderate the influence of acculturation on mental health.

Gendered Acculturation Influences on Immigrant Mental Health

The predictors of mental health are patterned by gender for immigrant Asians (Tsai et al. 2001; Liu and Iwamoto 2006). For example, Tsai et al. (2001) found that, among Chinese American women, self-esteem varied as a function of pride in Chinese culture; however, among Chinese American men, it was influenced by language proficiency. Cultural adaptation in families, neighborhoods, and communities are also patterned by gender for immigrants in the racialized context of the US. In one study of Mexican immigrant women, having fewer Hispanic friends, speaking English almost exclusively, and spending most of your childhood only in the US predicted fewer depression symptoms; this relationship was explained by family support (Dinh et al. 2009).

Immigrants often idealize the traditional family value system and gender roles of the culture of origin in their family environments (Mahalingam and Leu 2005). For example, immigrant women may be expected to adhere more with traditional gender roles than compared with non-immigrant women in the host culture (Durgel et al. 2009; Sakamoto 2006). These findings suggest important differences in how ethnic identity may shape the influence of family on the mental health of immigrant women.

Most research finds that strong *ethnic identity* promotes psychological well-being among immigrants and ethnic minorities (Phinney et al. 2001; Gong et al. 2003). However, if ethnicity is a central component of one's identity, it is equally plausible that having a strong ethnic identity may actually exacerbate the effects of relevant stressful environments on mental health (Turner et al. 1987). Experiences of family cultural conflict may be such a proximal environment to immigrant Asian women with strong ethnic identities. Given that greater family cultural conflict is associated with higher rates of depression and lower psychological well-being among both immigrant men and women (Walton and Takeuchi 2010; Farver et al. 2002; Greenberger and Chen 1996), family cultural conflict may be most detrimental to the mental health of immigrant

Asian women who are strongly identified with their ethnicity and value family harmony, a cultural value in collectivist countries (Phinney and Flores 2002; Markus and Kitayama 1991).

In the US, race relations inform the economic and social exclusion of immigrant Asian men in family, neighborhood, and community contexts. Immigrant Asian men, for example, report greater racial discrimination than women, a pattern that some argue is consistent across all non-European immigrant groups (Sidanius and Veniegas 2000). Discrimination experiences commonly include everyday insults reflecting a poor community reception at work, restaurants, or on buses (Sue et al. 2007). In general, discrimination is associated with poor mental and physical health outcomes (Gee et al. 2007; Brondolo et al. 2009). However, important differences exist among immigrant Asian men about who is most susceptible to the influence of discrimination on mental health. Immigrant Asian men who speak English poorly may not only have fewer resources to confront or cope with unfair treatment in a new country, but presumably also experience different kinds of discrimination than immigrant Asian men who speak English well (Goto et al. 2002).

Methods

Data were selected from the first nationally representative sample of Asian American immigrants ($N = 1,583$), the National Latino and Asian American Survey (NLAAS). The NLAAS used a multi-frame, stratified probability sampling scheme, described in detail elsewhere (Heeringa et al. 2004). In summary, samples were drawn using a multistage stratified area probability sampling design. Weighting corrections were constructed to control for differences in selection probability. This analysis only included data from foreign-born Asian American participants aged 18 and over ($N = 1,583$). Interviews were offered in English, Mandarin, Cantonese, Tagalog, and Vietnamese. The three largest ethnic groups represented were Chinese (32%), Filipino (20%), and Vietnamese (16%); more than 21 other Asian ethnicities, including Japanese, Korean, Indian, and Pacific Islanders, are also included. Informed consent was written and signed by the respondent and verified by the interviewer.

Measures

Mood dysfunction. Our dependent variable was the presence of mood dysfunction in the 12 months prior to the interview (12 month period prevalence). *Mood dysfunction* was a composite formed by the presence of at least one clinical or sub-clinical symptom of anxiety or affective

disorder, as measured by the Composite International Diagnostic Interview (CIDI; World Health Organization). The CIDI is the most widely used structured diagnostic interview and was designed to be used across cultures. This dependent variable has been used in other published studies using this dataset (Leu et al. 2008).

Individual domains of acculturation. Three measures of individual acculturation were used. These measures reflect the most common items in acculturation scales (e.g., Zane and Mak 2003). *English language proficiency* was measured using a scale that asked the respondent to rate his or her ability to speak, read and write in English. Participant's scores were the sum of three questions. Response categories ranged from (1) poor to (4) excellent, yielding minimum and maximum scores from 3 to 12. Higher values reflected greater English proficiency.

Ethnic identification consisted of one measure, using a 4-point scale (Félix-Ortiz et al. 1994). Participants responded to the question, "How close do you feel, in your ideas and feelings about things, to other people of the same racial and ethnic descent?" This question has been used as a measure of the centrality of ethnic identity in other studies of Asian immigrants (Yip et al. 2008).

The amount of time spent in the US was calculated in relation to a participant's age and age at immigration. While many acculturation scales only include years in the host culture as a measure of exposure to a new culture, recent evidence suggests that the age at immigration is also relevant to understanding cultural exposure in relation to mood dysfunction (Takeuchi et al. 2007; Leu et al. 2008). Therefore, we created a variable to measure the *proportion of an immigrant's life spent in the US* (e.g., (current age – age at immigration)/current age), which has been used in other studies (Juon et al. 2000). Responses ranged from 0% to 100%.

Social context measures: Family context. To measure family context, participants were asked to respond to five questions about *family cultural conflict* (a subscale from the Hispanic Stress Inventory; Cervantes et al. 1991). The scale included items such as, "You have felt that being too close to your family interfered with your own goals," and "Because you have different customs, you have had arguments with other members of your family." Response categories ranged from (1) hardly ever to (3) often, yielding minimum and maximum sum scores from 5 to 15. Higher values indicated greater cultural conflicts in the family context.

Neighborhood context. To measure the influence of ethnic density in an immigrant's neighborhood on mood dysfunction, we operationalized *ethnic density of their neighborhood* by dividing the number of Asians (of any ethnicity or nationality) by the total population of the census tract. Minimum and maximum scores ranged from

0% to 69.6%. Higher values reflected greater Asian ethnic density in the participant's neighborhood.

Community reception context. As a broad measure of reception by other racial/ethnic groups in the US, participants responded to a 9-item scale measuring *everyday discrimination* (Williams et al. 1999). This scale is obtained by adding up the answers to nine questions, such as “You are treated with less courtesy than other people” and “You are treated with less respect than other people.” Response categories ranged from (1) almost every day to (6) never; scores were reverse coded so that higher values indicated more frequent discrimination, yielding minimum and maximum scores from 9 to 54.

Demographics. Five groups of demographic variables were used as control variables. Each of these variables, socioeconomic status, marital status, age, gender, ethnicity, and citizenship, is associated with mental health outcomes. *Socioeconomic status* was measured using five items, including educational attainment, household income, family size, employment status, and subjective social status. *Marital status, age, ethnicity, and citizenship* were measured using single-item measures.

Socioeconomic status was measured in five ways. *Educational attainment* was measured by having respondents indicate the number of years of schooling they had completed. *Household income* was the sum of the midpoints of the following income measures: personal, spouse, other family members, social security, government assistance, and other sources. Because of a large number of missing values (270 missing), this variable was imputed using hot deck methods based on the variables of ethnicity, sex, age, education, household composition, and employment status. We used \$80,000 or more as the reference group. We controlled for the *family size* in order to make household income interpretable at the individual level among immigrants. Many participants did not report their occupation (95 missing values). Instead, we used employment status, calculated by categorizing participants as employed, unemployed, out of the labor force, or missing. Lastly, *subjective social status* was measured as an indicator of relative social rank (Adler et al. 2000). Previous research has demonstrated the relevance of this measure in Asian immigrant populations (Leu et al. 2008).

Gender, ethnicity, US citizenship, and marital status were included in our analysis. *Gender* was coded as either male or female depending on participants' self-identification. *Ethnicity* was categorized into one of four groups (Vietnamese, Filipino, Chinese, and Other Asian), where Chinese was the reference group as the largest ethnicity represented. *US citizenship* was dichotomized non-citizen versus citizen (reference group). *Marital status* was dichotomized married versus non-married (reference group).

Results

Statistical Analysis

We aimed to test variables at different levels of the ecological context that make either additive or interactive contributions to depression and anxiety (Yoshikawa et al. 2005). Our main analysis consists of a series of nested multivariate survey logistic regression models, split by gender, which assess the net effect of acculturation domain variables on the presence of mood dysfunction. The analyses are split by gender to allow for an easier interpretation of potential three-way interaction effects across gender, individual domains of acculturation, and social context variables. All of the analyses are weighted and adjust for the hierarchical nature of the multistage survey data using SAS-callable SUDAAN procedures. The SUDAAN procedures allow for the incorporation of complex survey sampling methods, including designs with stratification, clustering, and unequal sampling weights, in the point and standard error (SE) estimation.

The analyses consist of four tables. Table 1 provides descriptive statistics for the total sample, and stratifies the sample by gender. T-tests were used to compare the weighted means for all variables by gender. Table 2 reports the results from a series of survey logistic regressions that focus on the relationship between individual acculturation domain measures and social contexts and their relationship to mood dysfunction among immigrant men; a correlation table of all variables can be found in the Appendix. Table 3 reports the results among immigrant women. We report odds ratios and 95% confidence intervals. We perform this analysis in five steps. Model 1 tests the unadjusted bivariate relationship of domains of acculturation (e.g., English proficiency, ethnic identity, and time in US) with mood dysfunction, controlling for relevant demographic variables. Models 2, 3, and 4 sequentially add social context variables (e.g., family, neighborhood, and community reception) to determine if the effects of individual acculturation domain measures on mood dysfunction remain after the inclusion of ecological variables in the analyses. In Model 4, we test the combined effect of social contexts and individual domains of acculturation on mood dysfunction.

Table 4 tests whether mood dysfunction depends on interactions between acculturation domain measures and social contexts, separately for immigrant men and women. For example, social context of the community reception is determined to moderate the relationship between an acculturation domain variable and mood dysfunction if, for example, there is a significant interaction between English proficiency and everyday discrimination (Baron and Kenny 1986). Similarly, the social context of family is tested as a

Table 1 Descriptive statistics for total sample and stratified by gender ($N = 1,583$)

Variable	Total sample ($N = 1583$)		Men ($n = 749$)		Women ($n = 834$)		Gender Difference
	Mean	SE	Mean	SE	Mean	SE	
Mood dysfunction	11.9%	(0.87)	10.3%	(1.46)	13.3%	(1.51)	
English language proficiency (scale 3–12)	8.06	(0.19)	8.27	(0.21)	7.88	(0.19)	*
Proportion of life in US	39.1%	(1.38)	39.9%	(1.79)	38.5%	(1.61)	
Ethnic identification (scale 1–4)	3.24	(0.03)	3.24	(0.04)	3.24	(0.03)	
Family cultural conflict (scale 5–15)	6.57	(0.06)	6.56	(0.08)	6.57	(0.08)	
Everyday discrimination (scale 9–54)	15.73	(0.21)	16.60	(0.42)	14.98	(0.26)	**
Ethnic density	23.9%	(1.43)	24.0%	(1.69)	23.8%	(1.35)	
Education (years)	13.48	(0.19)	13.87	(0.22)	13.15	(0.21)	***
Household income (thousands of dollars)	79.92	(2.96)	85.27	(4.12)	75.22	(3.64)	
Subjective social status (scale 1–10)	5.76	(0.09)	5.69	(0.14)	5.82	(0.09)	
Employment status							
Employed	63.7%	(1.74)	72.7%	(1.98)	55.8%	(2.47)	***
Unemployed	6.5%	(0.73)	5.7%	(0.79)	7.2%	(1.22)	
Out of labor force	16.9%	(1.62)	12.6%	(1.73)	20.6%	(2.56)	**
Missing	13.0%	(1.44)	9.0%	(1.54)	16.4%	(1.94)	**
Family size (persons)	2.95	(0.07)	2.93	(0.10)	2.97	(0.09)	
Married	72.4%	(1.64)	71.6%	(2.76)	73.1%	(1.87)	
Age (years)	42.27	(0.82)	41.59	(0.95)	42.87	(0.87)	
Ethnicity							
Vietnamese	15.4%	(2.26)	15.4%	(2.29)	15.5%	(2.38)	
Filipino	19.9%	(2.28)	18.2%	(2.41)	21.3%	(2.55)	
Chinese	30.5%	(3.22)	30.2%	(3.58)	30.9%	(3.23)	
Other Asian	34.2%	(2.66)	36.3%	(3.51)	32.3%	(2.54)	
Non-citizen	40.6%	(2.49)	42.7%	(2.91)	38.7%	(2.72)	

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

moderator of the association between ethnic identification and mood dysfunction. All possible interactions between individual measures of acculturation domains and social context were tested; however, only significant results are reported in Table 4.

Descriptive Statistics and Associations

We limited data to foreign-born participants aged 18 and older ($N = 1,583$). Almost twelve percent of the sample reported mood dysfunction in the past 12 months (see Table 1). Weighted 12-month period prevalence was based on the presence of at least one clinical or sub-threshold report of an affective or anxiety disorder in the past 12 months (including symptoms of panic disorder, agoraphobia, social phobia, post-traumatic stress disorder, generalized anxiety disorder, major depressive episode and dysthymia). Participants could have reported multiple dysfunctions.

Respondents reported above-average proficiency in English ($M = 8.1$ on a scale of 3–12), spent roughly 40% of their lives in the US ($SE = 1.38$), and were relatively

high in their ethnic identification ($M = 3.24$ on a scale of 1–4). They reported relatively low levels of family cultural conflict ($M = 6.6$ on a scale of 5–15) and everyday discrimination ($M = 15.7$ on a scale of 9–54). The mean ethnic density of Asians in the neighborhood of residence was 24% ($SE = 1.43$).

The average age was 42 years old ($SE = 0.82$), and 72% ($SE = 2.96$) of the sample was married. The sample was 53% female. The mean number of years of formal education was 13 ($SE = 0.19$), the mean household income was \$80,000 (median = \$64,500). Roughly 64% ($SE = 1.74$) of the total sample was employed, and participants ranked themselves as having above-average social status relative to other Americans ($M = 5.8$ on a subjective social status scale of 1–10).

Men. Table 2 presents the results of Model 1 that examined the relationship between individual acculturation domain measures, controlling for demographics, and mood dysfunction. Greater *English language proficiency* predicted a lower likelihood of mood dysfunction ($B = -0.29$ (0.09), $p < 0.01$) after adjusting for relevant demographic measures. Stronger *ethnic identity* also significantly

Table 2 Logistic regressions of traditional acculturation measures and social contexts on mood dysfunction among men ($n = 749$)

Variables	Model 1				Model 2				Model 3			
	<i>B</i>	(SE)	OR	(95% CI)	<i>B</i>	(SE)	OR	(95% CI)	<i>B</i>	(SE)	OR	(95% CI)
Intercept	-1.03	(1.27)	0.36	(0.03,4.72)	-3.69	(1.33)	0.03	(0.00,0.38)	-1.90	(1.18)	0.15	(0.01,1.66)
English language proficiency	-0.29**	(0.09)	0.75	(0.63,0.89)	-0.23*	(0.09)	0.79	(0.65,0.96)	-0.28**	(0.08)	0.75	(0.64,0.90)
Proportion of life in US	1.89	(1.13)	6.64	(0.67,65.56)	1.52	(1.08)	4.58	(0.51,41.37)	1.53	(1.11)	4.62	(0.49,43.88)
Ethnic identification	-0.45**	(0.16)	0.64	(0.46,0.89)	-0.42*	(0.20)	0.66	(0.43,0.99)	-0.41*	(0.17)	0.66	(0.46,0.94)
Family cultural conflict					0.34***	(0.06)	1.40	(1.23,1.58)				
Everyday discrimination									0.07**	(0.02)	1.07	(1.02,1.12)
Ethnic density												
Variables	Model 4				Model 5							
	<i>B</i>	(SE)	OR	(95% CI)	<i>B</i>	(SE)	OR	(95% CI)				
Intercept	-0.51	(1.28)	0.60	(0.04,8.09)	-3.42*	(1.45)	0.03	(0.00,0.62)				
English language proficiency	-0.30**	(0.09)	0.74	(0.62,0.89)	-0.24*	(0.09)	0.79	(0.65,0.95)				
Proportion of life in US	1.80	(1.15)	6.03	(0.58,62.34)	1.30	(1.07)	3.66	(0.42,32.11)				
Ethnic identification	-0.40*	(0.18)	0.67	(0.46,0.96)	-0.37	(0.23)	0.69	(0.43,1.09)				
Family cultural conflict					0.29***	(0.08)	1.33	(1.14,1.56)				
Everyday discrimination					0.04	(0.02)	1.04	(0.99,1.09)				
Ethnic density	-2.56**	(0.79)	0.08	(0.02,0.39)	-2.30*	(0.86)	0.10	(0.02,0.57)				

Models control for education, household income, subjective social status, employment status, family size, marital status, age, ethnicity, and citizenship

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3 Logistic regressions of traditional acculturation measures and social contexts on mood dysfunction among women ($n = 834$)

Variables	Model 1				Model 2				Model 3			
	<i>B</i>	(SE)	OR	(95% CI)	<i>B</i>	(SE)	OR	(95% CI)	<i>B</i>	(SE)	OR	(95% CI)
Intercept	-0.58	(1.36)	0.56	(0.04,8.81)	-3.86*	(1.58)	0.02	(0.00,0.52)	-1.82	(1.40)	0.16	(0.01,2.82)
English language proficiency	-0.02	(0.07)	0.98	(0.85,1.13)	-0.01	(0.09)	0.99	(0.83,1.18)	-0.05	(0.07)	0.95	(0.83,1.09)
Proportion of life in US	1.00	(0.84)	2.72	(0.49,15.03)	1.03	(1.01)	2.80	(0.36,21.82)	0.97	(0.86)	2.63	(0.46,15.11)
Ethnic identification	0.36	(0.23)	1.44	(0.91,2.28)	0.49	(0.25)	1.64	(0.98,2.78)	0.30	(0.23)	1.34	(0.84,2.14)
Family cultural conflict					0.36***	(0.07)	1.43	(1.25,1.63)				
Everyday discrimination									0.09**	(0.03)	1.09	(1.03,1.15)
Ethnic density												
Variables	Model 4				Model 5							
	<i>B</i>	(SE)	OR	(95% CI)	<i>B</i>	(SE)	OR	(95% CI)				
Intercept	-0.63	(1.34)	0.53	(0.03,8.15)	-4.09*	(1.53)	0.02	(0.00,0.37)				
English language proficiency	-0.02	(0.07)	0.98	(0.85,1.13)	-0.03	(0.08)	0.97	(0.82,1315)				
Proportion of life in US	1.00	(0.84)	2.71	(0.49,15.08)	0.98	(1.00)	2.66	(0.35,20.24)				
Ethnic identification	0.36	(0.23)	1.43	(0.90,2.27)	0.43	(0.27)	1.53	(0.89,2.63)				
Family cultural conflict					0.31***	(0.07)	1.36	(1.17,1.57)				
Everyday discrimination					0.05	(0.03)	1.05	(0.99,1.12)				
Ethnic density	0.23	(0.62)	1.25	(0.35,4.45)	-0.07	(0.66)	0.93	(0.24,3.59)				

Models control for education, household income, subjective social status, employment status, family size, marital status, age, ethnicity, and citizenship

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4 Logistic regressions of traditional acculturation measures, social contexts, and interactions on mood dysfunction

Variables	Model 1, Men				Model 2, Women			
	<i>B</i>	(SE)	OR	(95% CI)	<i>B</i>	(SE)	OR	(95% CI)
Intercept	−5.59**	(1.65)	0.00	(0.00,0.11)	−8.81**	(3.16)	0.00	(0.00,0.09)
English language proficiency	0.03	(0.15)	1.03	(0.76,1.40)	−0.04	(0.09)	0.97	(0.81,1.15)
Proportion of life in US	1.45	(1.01)	4.27	(0.55,33.47)	0.91	(1.01)	2.50	(0.32,19.61)
Ethnic identification	−0.37	(0.21)	0.69	(0.45,1.06)	1.85*	(0.81)	6.34	(1.22,32.86)
Family cultural conflict	0.28***	(0.08)	1.33	(1.14,1.55)	0.92	(0.33)	2.50	(1.27,4.92)
Everyday discrimination	0.15**	(0.05)	1.16	(1.05,1.28)	0.06	(0.03)	1.06	(0.99,1.13)
Ethnic density	−2.28*	(0.93)	0.10	(0.02,0.67)	−0.11	(0.67)	0.90	(0.23,3.50)
English language proficiency × everyday discrimination	−0.01*	(0.01)	0.99	(0.97,1.00)				
Ethnic identification × family cultural conflict					−0.19*	(0.09)	0.83	(0.70,0.99)

Models control for education, household income, subjective social status, employment status, family size, marital status, age, ethnicity, and citizenship

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

predicted less mood dysfunction ($B = -0.45$ (0.16), $p < 0.01$) after adjusting for relevant demographic measures. *Proportion of life in the US* was not related to mood dysfunction.

Women. Table 3 presents the results of Model 1 that examined the relationship between individual acculturation domain measures, controlling for demographics, and mood dysfunction among immigrant women. None of the acculturation domain measures was associated with mood dysfunction after controlling for relevant demographic measures.

Gendered Influences on Associations between Social Contexts and Mental Health

Tables 2 and 3 present four models that examined the relationship between social contexts and mood dysfunction. Models 2, 3, and 4 test the effect of a single social context on mood dysfunction; Model 5 tests the independent effects for each social context when they are entered into the model simultaneously.

Men. Greater *family cultural conflict* ($B = 0.34$ (0.06), $p < 0.001$; Model 2, Table 3), more frequent *everyday discrimination* ($B = 0.07$ (0.02), $p < 0.01$); Model 3, Table 3) and a smaller proportion of *neighborhood ethnic density* ($B = -2.56$ (0.79), $p < 0.01$; Model 4, Table 3) predicted a higher likelihood of mood dysfunction, after adjusting for individual variables, including domains of acculturation and relevant demographics. In Model 5, when the social context variables were entered simultaneously, only *family cultural conflict* and *neighborhood ethnic density* remained significantly associated. Greater *family cultural conflict* was associated with increased chances of mood dysfunction ($B = 0.29$ (0.80), $p < 0.001$), whereas

greater *ethnic neighborhood density* was associated with decreased chances of mood dysfunction ($B = -2.30$ (0.86), $p < 0.05$).

Women. Among immigrant women, greater *family cultural conflict* ($B = 0.36$ (0.07), $p < 0.001$; Model 2, Table 3) and more frequent *everyday discrimination* ($B = 0.09$ (0.03), $p < 0.01$; Model 3, Table 3) were associated with greater odds of mood dysfunction, after adjusting for individual acculturation domain and demographic variables. *Neighborhood ethnic density* was not a significant predictor of mood dysfunction, after adjusting for domains of acculturation and relevant demographics (Model 4).

In Model 5, when the social context variables were entered simultaneously, only *family cultural conflict* remained significantly associated with mood dysfunction, controlling for domains of acculturation and relevant demographic measures. Greater *family cultural conflict* was associated with increased chances of mood dysfunction ($B = 0.31$ (0.07), $p < 0.001$).

Gendered Influences on How Social Contexts Moderate the Relationship between Individual Domains of Acculturation and Mental Health

Men. Following an ecological paradigm, we further examined whether gender and social contexts changed the relationship between individual measures of acculturation domains and depression and anxiety symptoms. As seen in Model 1 of Table 4, *everyday discrimination* moderated the relationship between *English proficiency* and mood dysfunction ($B = -0.01$ (0.01), $p < 0.05$). Figure 1 helps to interpret this interaction, suggesting that discrimination was more harmful among immigrant men with poor or fair

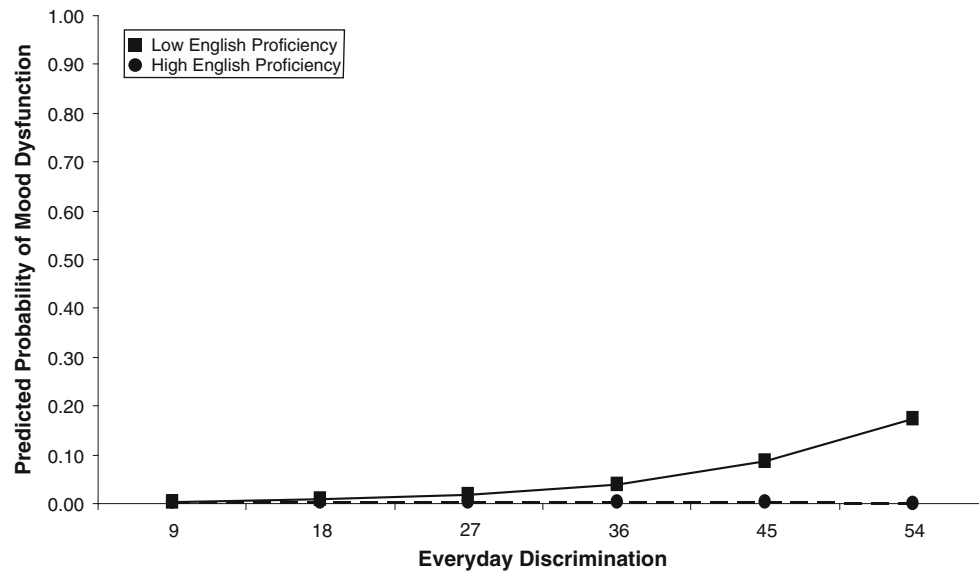


Fig. 1 Mood dysfunction among immigrant Asian men as a function of everyday discrimination and individual differences in English language proficiency. *Filled square* low english proficiency, *filled circle* high english proficiency

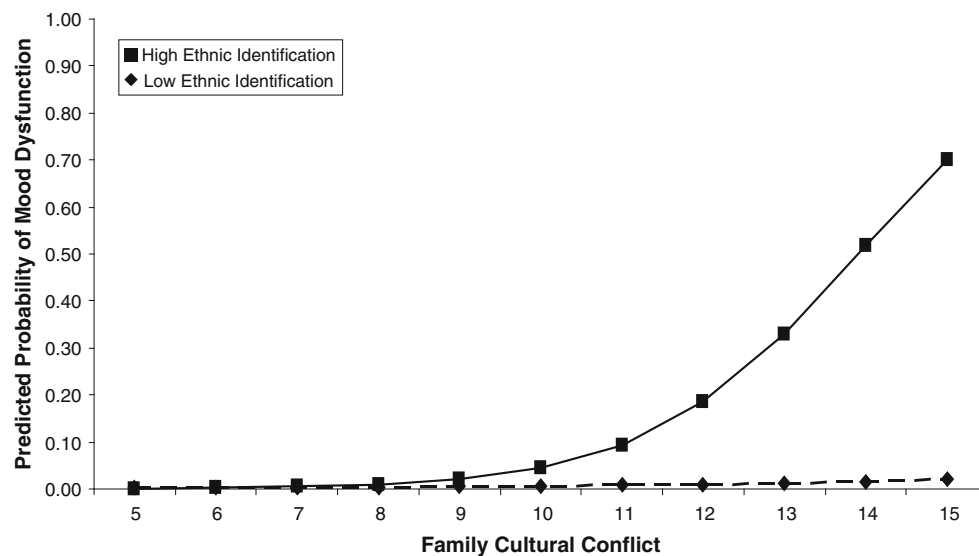


Fig. 2 Mood dysfunction among immigrant Asian women as a function of family cultural conflict and individual differences in ethnic identity. *Filled square* high ethnic identification, *filled diamond* low ethnic identification

English proficiency ($B = 0.11$ (0.05), $p < 0.05$) than among those with good or excellent English skills (reference group). No other interactions between acculturation domain variables and social contexts were statistically significant.

In the presence of this interaction, no acculturation domain measures were directly associated with mood dysfunction among immigrant men. However, several social context measures were still independently associated with poor mental health. For example, more frequent *everyday discrimination* ($B = 0.15$ (0.05), $p < 0.01$) and greater *family cultural conflict* ($B = 0.28$ (0.08), $p < 0.001$) were

associated with greater odds of mood dysfunction, while greater *neighborhood ethnic density* seemed protective ($B = -2.28$ (0.93), $p < 0.05$).

Women. As seen in Model 2 of Table 4, ethnic identity's influence on mood dysfunction depended on the family social context ($B = -0.19$ (0.09), $p < 0.05$). Figure 2 illustrates that family cultural conflict and mental health outcomes were more strongly associated among immigrant women who were strongly identified with their ethnicity than among those who were less identified. No other interactions between acculturation domain variables and social contexts were statistically significant.

In the presence of this interaction, only one other variable remained significant. Ethnic identity became significantly associated ($B = 1.85$ (0.81), $p < 0.05$), suggesting that the probability of mood dysfunction increased as ethnic identity increased among immigrant women.

Discussion

Using data from the first nationally-representative psychiatric survey of Asian immigrants, we found evidence that a multilevel, ecological paradigm furthers an understanding of how acculturation influences immigrant mental health, which is complex and has multiple causes. Patterns of mental health diverged by gender and social context (i.e., family, neighborhood, and community reception), demonstrating diversity in the experiences of immigrant Asians. Moreover, we found that acculturation domains (e.g., English proficiency, ethnic identity) were important in considering mental health outcomes, but that their influence depended on gender and social context.

Immigrant Asian Women

While most studies suggest that ethnic identity protects against mental health risk, we found that the more central one's ethnicity was to an immigrant woman's identity, the greater the odds of depression and anxiety among immigrant Asian women. Our data also suggested that cultural conflict in the family is especially detrimental among immigrant Asian women who are highly identified with their ethnicity, compared with their peers who are not.

These findings may be explained by the particular cultural and racial dynamics in immigrant Asian families. For example, a strong ethnic identity often may be equated with endorsement of traditional gender roles and concern with family harmony in collectivist cultures (Phinney and Flores 2002; Markus and Kitayama 1991). Immigrant Asian women may spend considerably more time with the family than their male peers given their greater rate of unemployment and lower levels of English proficiency, making the family context that much more central to their mental health outcomes.

Immigrant Asian Men

Among immigrant Asian men, living in a neighborhood with increasing representation of other Asians seemed to protect against poor mental health. Poor community reception (e.g., frequent everyday discrimination) and higher rates of family cultural conflict were also associated with increases in the likelihood of poor mental health among immigrant Asian men. We also found evidence that

everyday discrimination was especially influential to the mental health of immigrant Asian men who reported poor English language proficiency.

There are several likely interpretations of this last finding. Social psychological research on discrimination suggests that targets of discrimination may attribute unfair treatment to a personal deficiency (Branscombe et al. 1999); for example, immigrant men may attribute unfair treatment to a personal failure more easily if they speak English poorly than if they speak English well. Given that proficient English speakers were more likely to have higher levels of educational attainment, it is also reasonable that immigrant men with poor English proficiency may have fewer coping resources than immigrant men with high English proficiency (Taylor and Stanton 2007).

Significance of Findings

The national costs of treatment for mental health are roughly \$250 billion (IOM 2009), and create an enormous burden on the affected individuals, their families, and society. Past research demonstrates that mental health problems increase among Asian Americans within a single generation, due to a range of social shifts and psychological factors associated with immigration (Frisbie et al. 2001; Takeuchi et al. 2007). Given that by 2050, Asian Americans will constitute 15% of the US population (Passel and D'Vera 2008), attending to the correlates of mental health among immigrant Asians now may help reduce the cost national cost of mental health treatment later.

These results suggest that individual differences in acculturation domains interact with social contexts and gender to impact mental health, which may help explain why findings in past studies of acculturation using an "individual differences" perspective have been inconsistent. In particular, these results suggest the significance of the family context to the mental health of immigrant Asians. Among our measures, only family cultural conflict was significantly related to symptoms of depression and anxiety for men and women, although the patterns differed. Family contexts may be especially active sites of socialization for adult immigrants who are negotiating new forms of cultural contact and adaptation. Given this, examination of family cultural conflict and the gendered mechanisms by which conflict impacts health deserve more research attention.

Implications for interventions. The demonstration of independent and joint effects of multiple factors on immigrant mental health has significance for the development of interventions. These data suggest that interventions should be developed with the relationships between the individual, family, neighborhood, and community in mind, promoting well-being in relationships between people and their local environments since a "one size fits all" solution

may lack impact. With the complexity and changing nature of immigrant mental health, interventions should focus on increasing community resources and social capital to confront current, evolving challenges (Trickett 2009; Yoshikawa et al. 2005). For example, simply relying on past studies at the individual level of analysis, one may suggest that increasing immigrants' sense of ethnic pride may be an effective intervention. However, our data suggest that this may not be advantageous, and may even be harmful, for immigrant women who experience frequent family cultural conflict. Instead, increasing community programs dedicated to promoting healthy immigrant families may be a better intervention since they are flexible enough to adapt to a community's changing needs.

Limitations

This study has the strength of using data from a nationally-representative and ethnically diverse sample of adult Asian immigrants; however, there are several limitations as well. This sample, on average, is highly educated and wealthy, reinforcing the idea that the “average” immigrant Asian is a “model minority,” despite considerable variability within this group, including almost 25% of the sample who are not employed. These results may not generalize to a sample with

fewer socioeconomic resources. Thus, more research is needed on individuals and families in difficult economic circumstances.

Moreover, these findings may depend on the specific ways we have measured acculturation domains and social contexts. For example, our measure of ethnic identity conflated race and ethnicity which are separate constructs (Helms 2007), and focused on how central ethnicity is to one's social identity although there are other components of ethnic identity. Our measures also did not include gender role conflict, which could potentially illuminate a mechanism by which family cultural conflict diminishes mental health differently among immigrant men and women.

Lastly, the analyses rely on cross-sectional data although the topic of adaptation is really a longitudinal question. A panel study is needed to adequately justify a causal interpretation of the observed associations. More generally, research with an ecological perspective is needed to better understand the complex and significant issue of immigrant mental health.

Appendix

See Table 5.

Table 5 Zero-order correlations of all variables included in analyses

	Mood dysfunction	Education	Household income	Subjective social status	Unemployed	Out of workforce	Missing employment status	Family size	Married	Age
Mood dysfunction	1.00									
Education	0.01	1.00								
Household income	0.00	0.19***	1.00							
Subjective social status	-0.05*	0.29***	0.20***	1.00						
Unemployed	0.03	0.01	-0.04	-0.06*	1.00					
Out of workforce	0.01	-0.06*	-0.12***	-0.01	-0.12***	1.00				
Missing employment status	0.04	-0.10***	-0.10***	-0.07***	-0.10***	-0.18***	1.00			
Family size	-0.07*	-0.15***	0.01	-0.06*	0.04	0.03	-0.02	1.00		
Married	-0.12***	-0.02	0.15***	0.09***	-0.06*	-0.11***	0.03	0.09***	1.00	
Age	-0.06*	-0.25***	-0.07***	-0.15***	-0.10***	-0.02	0.28***	-0.08***	0.26***	1.00
Vietnamese	-0.04	-0.22***	-0.11***	-0.17***	0.04	0.04	-0.05*	0.14***	0.02	0.06*
Filipino	-0.03	0.02	0.06*	0.11***	-0.03	0.02	-0.04	0.08***	0.00	0.14***
Other ethnicity	0.03	0.17***	-0.01	0.16***	0.02	0.01	0.02	-0.07***	-0.03	-0.21***
Non citizen	0.03	-0.01	-0.04	-0.07*	0.04	0.05	-0.02	-0.03	-0.04	-0.26***
English language proficiency	-0.02	0.49***	0.20***	0.42***	-0.02	-0.01	-0.12***	-0.03	-0.13***	-0.35***
Proportion of life in US	0.06*	0.05*	0.08***	0.13***	0.01	-0.08***	0.01	0.04	-0.18***	-0.10***
Ethnic identification	-0.04	-0.04	-0.01	0.02	0.01	0.00	-0.07*	0.01	0.12***	0.09***

Table 5 continued

	Mood dysfunction	Education	Household income	Subjective social status	Unemployed	Out of workforce	Missing employment status	Family size	Married	Age
Family cultural conflict	0.27***	0.11***	-0.01	-0.03	0.06*	-0.04	0.01	-0.08**	-0.13***	-0.10***
Everyday discrimination	0.17***	0.12***	0.09***	0.03	0.01	-0.03	0.00	0.12***	-0.13***	-0.18***
Ethnic density	-0.05*	-0.04	0.01	-0.11***	0.02	-0.02	0.01	0.04	0.04	0.12***
	Vietnamese	Filipino	Other ethnicity	Non citizen	English language proficiency in US	Proportion of life in US	Ethnic identification	Family cultural conflict	Everyday discrimination	Ethnic density
Vietnamese	1.00									
Filipino	0.22***	1.00								
Other ethnicity	-0.31***	-0.35***	1.00							
Non citizen	-0.11***	-0.07**	0.15***	1.00						
English language proficiency	-0.31***	0.26***	0.28***	-0.10***	1.00					
Proportion of life in US	-0.09***	0.06*	0.08**	-0.52***	0.38***	1.00				
Ethnic identification	0.21***	0.02	-0.07**	-0.02	-0.12***	-0.21***	1.00			
Family cultural conflict	-0.10***	0.02	0.08***	0.01	0.07**	0.09***	-0.13***	1.00		
Everyday discrimination	-0.19***	0.08**	0.11***	0.00	0.21***	-0.18***	-0.12***	0.32***	1.00	
Ethnic density	0.08**	0.06*	-0.26***	0.01	-0.18***	-0.10***	0.08**	-0.01	-0.08**	1.00

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

References

- Adler, N. E., Epel, E. S., Castellazzo, G., & Ickovics, J. R. (2000). Relationship of subjective and objective social status with psychological and physiological functioning: Preliminary data in healthy white women. *Health Psychology, 19*(6), 586–592.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.
- Berry, J. (2003). Conceptual approaches to acculturation. In K. Chun, P. Balls Organista, & G. Marin (Eds.), *Acculturation: Advances in theory, measurement and applied research* (pp. 17–37). Washington, DC: American Psychological Association.
- Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African-Americans: Implications for group identification and well-being. *Journal of Personality and Social Psychology, 77*, 135–149.
- Brondolo, L., Gallo, L., & Myers, H. (2009). Race, racism, and health: Disparities, mechanisms, and interventions. *Journal of Behavioral Medicine, 32*, 1–8.
- Bronfenbrenner, U., & Morris, P. A. (1998). The ecology of developmental process. In W. Damon (Series Ed.) & R. M. Lerner (Vol. Ed.), *Handbook of child psychology: Vol. 1. Theoretical models of human development* (5th ed., pp. 993–1028). New York: Wiley.
- Cervantes, R. C., Padilla, A. M., & Salgado de Snyder, N. (1991). The hispanic stress inventory: A culturally relevant approach to psychosocial assessment. *Journal of Consulting and Clinical Psychology, 3*(3), 438–447.
- Dinh, K. T., Castro, F. G., Tein, J., & Kim, S. Y. (2009). Cultural predictors of physical and mental health status among Mexican American women: A mediation model. *American Journal of Community Psychology, 43*, 35–48.
- Durgel, E. S., Leyendecker, B., Yagmurlu, G., & Harwood, R. (2009). Sociocultural influences on German and Turkish immigrant mothers' long-term socialization goals. *Journal of Cross-Cultural Psychology, 40*(5), 834–852.
- Farver, J. M., Narang, S. K., & Bhadha, B. R. (2002). East meets West: Ethnic identity, acculturation, and conflict in Asian Indian families. *Journal of Family Psychology, 16*, 338–350.
- Félix-Ortiz, M., Newcomb, M. D., & Myers, H. (1994). A multidominal measure of cultural identity for Latino and Latina adolescents. *Hispanic Journal of Behavioral Sciences, 16*(2), 99–115.
- Frisbie, W., Cho, Y., & Hummer, R. (2001). Immigration and the health of Asian and Pacific Islander Adults in the US. *American Journal of Epidemiology, 153*(4), 372–380.
- Gee, G. C., Spencer, M. S., Chen, J., & Takeuchi, D. T. (2007). A nationwide study of discrimination and chronic health conditions among Asian Americans. *American Journal of Public Health, 97*(7), 1275–1282.
- Gong, F., Takeuchi, D. T., Agbayani-Siewert, P., & Tacata, L. (2003). Acculturation, psychological stress, and alcohol use: Investigating the effects of ethnic identity and religiosity. In K. M. Chun, P. B. Organista, & G. Marin (Eds.), *Acculturation: Advances in theory, measurement, and applied research* (pp. 189–206). Washington, D.C.: American Psychological Association.
- Goto, S. G., Gee, G. C., & Takeuchi, D. T. (2002). Strangers still? The experience of discrimination among Chinese Americans. *Journal of Community Psychology, 30*(2), 211–224.

- Greenberger, E., & Chen, C. (1996). Perceived family relationships and depressed mood in early and late adolescence: A comparison of European and Asian Americans. *Developmental Psychology, 32*, 707–716.
- Heeringa, S. G., Wagner, J., Torres, M., Duan, N., Adams, T., & Berglund, P. (2004). Sample designs and sampling methods for the collaborative psychiatric epidemiology studies (CPES). *International Journal of Methods in Psychiatric Research, 13*(4), 221–240.
- Helms, J. E. (2007). Some better practices for measuring racial and ethnic identity constructs. *Journal of Counseling Psychology, 54*(3), 235–246.
- Institute of Medicine. (2009). *Preventing mental, emotional, and behavioral disorders among young people: Progress and possibilities*. The National Academies: Report Brief for Researchers.
- Juon, H.-S., Choi, Y., & Kim, M. T. (2000). Cancer screening behaviors among Korean-American women. *Cancer Detection and Prevention, 24*(6), 589–601.
- Kimbro, R. T. (2009). Acculturation in context: Gender, age at migration, neighborhood ethnicity, and health behaviors. *Social Science Quarterly, 90*(5), 1145–1166.
- Leu, J., Yen, I., Gansky, S., Walton, E., Adler, N., & Takeuchi, D. (2008). The association between subjective social status and mental health among Asian immigrants: Investigating the influence of age at immigration. *Social Science and Medicine, 66*(5), 1152–1164.
- Liu, W. M., & Iwamoto, D. K. (2006). Asian American men's gender role conflict: The role of Asian values, self-esteem, and psychological distress. *Psychology of Men & Masculinity, 7*(3), 153–164.
- Mahalingam, R., & Leu, J. (2005). Culture, essentialism, displacement and representations of gender. *Theory and Psychology, 15*(6), 841–862.
- Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224–253.
- Miller, J. M. (2010). Testing a bilinear domain-specific model of acculturation and enculturation across generational status. *Journal of Counseling Psychology, 57*(2), 179–186.
- Miller, A. M., Birman, D., Zenk, S., Wang, E., Sorokin, O., & Connor, J. (2008). Neighborhood immigrant concentration, acculturation, and cultural alienation in former Soviet immigrant women. *Journal of Community Psychology, 37*(1), 88–105.
- Mossakowski, K. N. (2003). Coping with perceived discrimination: Does ethnic identity protect mental health? *Journal of Health and Social Behavior, 44*, 318–331.
- Nicassio, P. M., Solomon, G. S., Guest, S. S., & McCullough, J. E. (1986). Emigration stress and language proficiency as correlates of depression in a sample of Southeast Asian refugees. *International Journal of Social Psychiatry, 32*(1), 22–28.
- Noh, S., Beiser, M., Kaspar, V., Hou, F., & Rummens, J. (1999). Perceived racial discrimination, depression, and coping: A study of Southeast Asian refugees in Canada. *Journal of Health and Social Behavior, 40*(3), 193–207.
- Passel, J. S., & D'Veira, C. (2008). *U.S. Population Projections: 2005–2050*. Washington, D.C.: Pew Research Center Social & Demographic Trends.
- Phinney, J. S., & Flores, J. (2002). 'Unpackaging' acculturation: Aspects of acculturation as predictors of traditional sex role attitudes. *Journal of Cross-Cultural Psychology, 33*, 320–331.
- Phinney, J. S., Horenczyk, G., Liebkind, K., & Vedder, P. (2001). Ethnic identity, immigration, and well-being: An interactional perspective. *Journal of Social Issues, 57*, 493–511.
- Portes, A., & Rumbaut, R. G. (1996). *Immigrant America: A portrait*. Berkeley, CA: University of California Press.
- Roosa, M. W., Weaver, S. R., White, R. M. B., Tein, J. Y., Knight, G. P., Gonzales, N., et al. (2009). Family and neighborhood fit or misfit and the adaptation of Mexican Americans. *American Journal of Community Psychology, 44*(1–2), 15–27.
- Sakamoto, I. (2006). When family enters the picture: The model of cultural negotiation and gendered experiences of Japanese academic sojourners in the United States. *Cultural Diversity and Ethnic Minority Psychology, 12*(3), 558–577.
- Sidanius, J., & Veniegas, R. C. (2000). Gender and race discrimination: The interactive nature of disadvantage. In Stuart Oskamp (Ed.), *Reducing prejudice and discrimination* (pp. 47–69). Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
- Sue, D. W., Bucceri, J., Lin, A. I., Nadal, K. L., & Torino, G. C. (2007). Racial microaggressions and the Asian American experience. *Cultural Diversity and Ethnic Minority Psychology, 13*, 72–81.
- Suinn, R. M. (2010). Reviewing acculturation and Asian Americans: How acculturation affects health, adjustment, school achievement, and counseling. *Asian American Journal of Psychology, 1*(1), 5–17.
- Takeuchi, D. T., Chung, R. C.-Y., Lin, K.-M., Shen, H., Kurasaki, K., Chun, C.-A., et al. (1998). Lifetime and twelve-month prevalence rates of major depressive episodes and dysthymia among Chinese Americans in Los Angeles. *American Journal of Psychiatry, 155*(10), 1407–1414.
- Takeuchi, D., Hong, S., Gile, K., & Alegría, M. (2007). Developmental contexts and mental disorders among Asian Americans. *Research on Human Development, 4*, 49.
- Taylor, S. E., & Stanton, A. (2007). Coping resources, coping processes, and mental health. *Annual Review of Clinical Psychology, 3*, 129–153.
- Trickett, E. J. (2009). Multilevel community-based culturally situated interventions and community impact: An ecological perspective. *American Journal of Community Psychology, 43*, 257–266.
- Tsai, J. L., Ying, Y., & Lee, P. A. (2001). Cultural predictors of self-esteem: A study of Chinese American female and male young adults. *Cultural Diversity and Ethnic Minority Psychology, 7*(3), 283–297.
- Turner, J. C., Hogg, M. A., Oakes, P. J., Reicher, S. D., & Wetherell, M. S. (1987). *Rediscovering the social group: A self-categorization theory*. Oxford: Blackwell.
- Unger, J. B., Cruz, T. B., Rohrbach, L. A., Ribisl, K. M., Baezconde-Garbanati, L., Chen, X., et al. (2000). English language use as a risk factor for smoking initiation among Hispanic and Asian American adolescents: Evidence for mediation by tobacco-related beliefs and social norms. *Health Psychology, 19*(5), 403–410.
- Walton, E., & Takeuchi, D. T. (2010). Family structure, family processes and well-being among Asian Americans: Considering gender and nativity. *Journal of Family Issues, 31*, 301–332.
- Westermeyer, J., Neider, J., & Vang, T. F. (1984). Acculturation and mental health: A study of Hmong refugees at 1.5 and 3.5 years post-migration. *Social Science and Medicine, 18*(1), 87–93.
- Williams, D. R., Spencer, M. S., & Jackson, J. S. (1999). Race, stress, and physical health: The role of group identity. In R. J. Contrada & R. D. Ashmore (Eds.), *Self, social identity, and physical health: Interdisciplinary explorations* (pp. 71–100). New York, NY: Oxford University Press.
- Yip, T., Gee, G., & Takeuchi, D. T. (2008). Racial discrimination and psychological distress: The impact of ethnic identity and age among immigrant and United States-born Asian adults. *Developmental Psychology, 44*(3), 787–800.
- Yoshikawa, H., Wilson, P., Peterson, J., & Shinn, M. (2005). Multiple pathways to community-level impacts in HIV prevention: Implications for conceptualization, implementation, and

- evaluation of interventions. In E. Trickett & W. Pequegnat (Eds.), *Communities and AIDS* (pp. 28–55). New York: Oxford University Press.
- Zane, N., & Mak, W. (2003). Major approaches to the measurement of acculturation among ethnic minority populations: A content analysis and an alternative empirical strategy. In K. M. Chun, P. B. Organista, & G. Marin (Eds.), *Acculturation: Advances in theory, measurement, and applied research* (pp. 39–60). Washington, D.C.: American Psychological Association.